



## **Aerospace Engineering Core**

### **Fall Semester**

MAE 5500 Aerodynamics (MAE 3420)  
MAE 5560 Dynamics of Space Flight (MAE 5360)  
MAE 6340 Spacecraft Attitude Control Theory (MAE 5310)  
MAE 6500 Potential Flow (MAE 5500)  
MAE 6510 Aircraft Dynamics & Flight Simulation (MAE 5510)  
MAE 6530 Advanced Propulsion (MAE 5540)  
MAE 6540 Advanced Astrodynamics\* (MAE 5560)  
MAE 7540 Adv Astrodynamics Techniq/Applications\* (MAE 5560)

### **Spring Semester**

MAE 6345 Spacecraft Attitude Control Application (MAE 6340)  
MAE 6560 Spacecraft Navigation (MAE 5310)  
MAE 7340 Advanced Aerospace Controls\* (MAE 6320)

### **Summer Semester**

MAE 6570 Optimal Space Guidance\* (MATH 2210, 2250)  
MAE 7560 Optimal Estimation/Aerospace\* (MAE 5310)  
MAE 7570 Monte Carlo/Linear Covariance (MAE 6560)

## **Technical Electives**

### **Fall Semester**

MAE 5310 Dynamic Systems and Controls (MAE 3340)  
MAE 5360 Advanced Dynamics (ENGR 2030)  
MAE 5420 Compressible Fluid Flow (MAE 2300)  
MAE 6180 Dynamics & Vibrations (MAE 5300 or MAE 6130)  
MAE 6410 Fluid Dynamics (MAE 3420 or CEE 3500)  
MAE 6320 Linear Multivariable Control (MAE 5310)  
ECE 5230 Space Systems Engineering (MATH 2270, 2280)  
ECE 6240 Space Environment Engineering (CoReq ECE 5230)  
MAE 7360 Optimal and Robust Control (MAE 6320)

### **Spring Semester**

MAE 5320 Mechatronics (MAE 5310)  
MAE 5440 Computational Fluid Dynamics (MAE 3420, 3440)  
MAE 5510 Dynamics of Atmospheric Flight (MAE 5500)  
MAE 5540 Propulsion Systems s (MAE 5420)  
MAE 6440 Advanced CFD (MAE 5440, 6410)  
MAE 6490 Turbulence\* (MAE 6410)  
MAE 6550 Advanced Structural Analysis\* (MAE 6040)  
MAE 7330 Nonlinear and Adaptive Control (MAE 6320)

### **All Semesters (Fall, Spring, and Summer)**

MAE 5930, 6930, 7930 Special Topics (must be Aero focused)

\* Not offered every year; check schedule or ask instructor.

Updated 9/22/2017

## **Approved Mathematics Courses**

### **Fall Semester**

MATH 5410 Methods of Applied Mathematics  
MATH 5760 Stochastic Processes  
MATH 6410 Ordinary Differential Equations I  
ECE 6010 Stochastic Processes in Electronic Systems

### **Spring Semester**

MATH 5270 Complex Variables  
MATH 5420 Partial Differential Equations  
MATH 5460 Intro to Theory/Application of Nonlinear Dynamical Sys  
MATH 6270 Complex Variables  
MATH 6420 Partial Differential Equations I  
MATH 6440 Ordinary Differential Equations II  
MATH 6450 Partial Differential Equations II  
MATH 6470 Advanced Asymptotic Methods  
MATH 6610 Matrix Computations  
MATH 6620 Numerical Analysis  
MATH 6640 Optimization  
ECE 6030 Math Methods for Signals and Systems  
STAT 5200 Design of Experiments

### **Summer Semester**

MAE 7560 Optimal Estimation for Aerospace Systems